



State of Utah

DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

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June 21, 1993

TO: Minerals File

FROM: Holland Shepherd, Senior Reclamation Specialist *HS*

SUBJECT: Inspection Bingham Canyon Mine, Kennecott Corporation, M/035/002
Salt Lake County, Utah

Inspection Date: June 18, 1993
Inspection Time: 9:30 a.m. - 3:30 p.m.
Participants: Don Deines, Lynn Marrs, Hank Hansen, Bingham Canyon, Kennecott; Holland Shepherd, DOGM
Conditions: Sunny, warm and windy

Purpose of Inspection: Review ongoing Eastside Collection System construction and associated areas undergoing reclamation. Overview of Bingham Canyon site status. Discuss upcoming reclamation activities.

Office Discussion

I first met with Don Deines of the Bingham Canyon Environmental Division. We discussed the proposed application of sewage sludge at the Bingham site. Mr. Deines indicated that he was presently working on a proposal for his management, to apply sewage sludge to areas under reclamation. He pointed out that the possibility looked good for approval, but that he could not commit anything until his management had approved the project. He indicated that the new EPA 503 rules allow an exemption for the application of sewage sludge, from CERCLA qualification, if the sludge is used for a beneficial use.

We briefly discussed the annual reclamation plan and the upcoming presentation to the Board of Oil, Gas and Mining. Mr. Deines indicated that he will be making the presentation to the Board on July 28, 1993.



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We also discussed the possible application of yard waste mulch to areas, to be reclaimed at the site. Mr. Deines indicated that he has been talking to the Salt Lake County Landfill manager, Mr. Romney Stuart, about using yard wastes disposed of at the County Landfill. The wastes would be mulched at the landfill then transported to Kennecott. Kennecott plans to use the mulch in its hydromulching operations.

East Side Collection System

The operator is involved in a massive clean-up operation of the Eastside facilities. The clean-up involves: storage ponds, waste dumps, dump effluents, the Lark wastes and tailings and Butterfield Canyon.

The clean-up efforts are being carried out by Kennecott's corporate Engineering Procurement and Construction (EPC) Division, which is managed via corporate Kennecott and not the Bingham Canyon operation. The operator has established two very large construction staging camps. One is at the mouth of Bingham Canyon, the other is north and adjacent to the Lark Tailings. These camps have been developed for the sole purpose of cleaning up the Bingham reservoir, eastside leachate collection system, Lark tailings and waste dump and the Butterfield Canyon areas. The camps include Kennecott and contractor personnel and equipment.

Work on the Bingham reservoir clean-up was initiated last fall and is on-going. The sediments from the reservoir are being removed to the old leach dumps. The sediments are in three forms: black sludges, sandy tailings and red sediments. The black sludge, the most amenable to soil material, is being mixed with carbonate materials and applied to the regraded, 3:1 leach slopes; six inches of carbonate material, then twelve inches of the black sludge mix. The black sludge mix is a remnant soil. The sandy tailings and red sediments are more acidic. They are being mixed with the carbonate material and placed in lifts, on the 5816 and 5960 old leach dump surfaces. They will eventually be capped with a less acid material and revegetated. At this time the 5816 has been completed, and the operator is still working on the 5960.

Several hundred acres have been reclaimed and several hundred more are slated for reclamation, in the eastside collection area and retired leach dumps (see 1992 Annual Report and the Proposed Reclamation Activities for 1993).

The operator has initiated another mining operation for the sole purpose of obtaining carbonate material to help in the leach dump reclamation. The area is

located south of the Bluewater I depository and northeast of Keystone Dump. Topsoil from the area has been salvaged and used on the on-going reclamation efforts associated with the leach dumps.

Portions of this site, planted last October of 92, are already well revegetated, with a diverse stand of forbs and grasses. The operator has also transplanted many trees onto the reclaimed slopes. The trees have been planted into tree mounds of about 10 to 15 feet in depth. The depth of soil below the trees has been increased to allow for roots growth before encountering acidic mine wastes. No shrubs or trees have been planted onto the areas where reclaimed soils have been placed over acid rock material. This has been done to prevent rooting into the potentially toxic acid material.

Some of the mine wastes being covered by the soil cap are quite acidic. The operator speculates that plant roots will not penetrate into the waste material, until the associated acidity has been reduced resulting from a reduction in oxidation and acid production.

Butterfield Canyon

We visited the Butterfield Canyon reclamation site. The operator has done an exceptional job in reclaiming this area. All mine rock wastes have been removed from the stream channel and the disturbed slopes reclaimed. The stream channel has been completely re-riprapped. The steep slopes have been erosion netted. The operator has placed concrete barricades in front of steep sloped ORV abused trails to prevent hill climbing.

I anticipate some very successful reclamation in this area in a couple of years.

Magna Tailings Facility

Some areas of the tailings pond will require another seeding. Areas which were reseeded one or two years ago now show poor revegetation success. Most lush growth appears to be located in areas of the lower pond embankment where water is close to the surface. Here, vegetation is quite lush.

Arthur Reclamation

The Arthur Concentrator site is under reclamation. So far the reclamation appears very successful. This area was reclaimed in late 1991 and early

Page 4
Kennecott Waste Rock
June 21, 1993

1992. A great deal of demolition, hazardous waste identification and disposal, and junk removal was performed in cleaning up the site. The operator has performed a great deal of work on this portion of the site and has done an excellent job in meeting the commitments made in the original reclamation plan, made with the Division. The original plan was not specific in describing how reclamation would be performed. The operator made specific plans available to the Division in 1991, prior to reclamation (see Bingham Mine file M/035/002). The operator has also made summary plans available for this site.

Summary

The operator has been keeping the Division well informed regarding plans concerning the mitigation of potential CERCLA sites (areas containing wastes and tailings on Kennecott property either placed there by the operator or another mining operation). There are 8 sites listed on CERCLIS and 6 other sites which Kennecott is addressing as part of a current environmental compliance and action program. The EPA and DEQ/DERR has been working with Kennecott directly on the clean-up activities. Kennecott has requested that the Division review any of the project documents it deems to be a part of the mining operation, hence falling under state reclamation requirements. The Division has not, as yet, specifically identified these areas, because of work load constraints.

I recommend that the Board of Oil, Gas and Mining take a tour of some of these areas, currently under reclamation. The Butterfield Canyon area would be of particular interest because the Earth Day Award that was given to the operator in April of 1993, addresses reclamation of Butterfield Canyon.

jb

cc: Don Deines, Operator
Wayne Hedberg, Minerals Supervisor
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